

# George G. Vega Yon

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## Education

### Ph.D. in Biostatistics (with concentration in Statistical Computing)

2020

University of Southern California, USA

Dissertation title: *"Essays on Bioinformatics and Social Network Analysis: Statistical and Computational Methods for Complex Systems"*

### M.Sc. in Social Sciences (with concentration in Economics)

2016

California Institute of Technology, USA

### Master in Economics and Public Policy

2011

Universidad Adolfo Ibáñez, Chile

### BS. in Business Administration (with a minor in Political Science)

2010

Universidad Adolfo Ibáñez, Chile

## Awards

Travel Grant, Society of Young Network Scientist

2019

Fellowship, California Institute of Technology

2014

Honorable Mention (Posters Session) Chilean Economics Society

2012

Scholarship, Universidad Adolfo Ibáñez

2006

## Major Areas of Research Interest

Social Networks and Complex Systems

Statistical Computing

Scientific Software Development

Non-parametric Statistics

Statistical Methods Development

## Professional Experience

**University of Southern California, 2015–present** Department of Preventive Medicine *Research Programmer*. As a senior research staff, I closely collaborate with researchers across the University. Besides providing technical support and educating community members on topics such as High-Performance-Computing and Statistical Computing—onsite workshops and presentations—, I actively contribute to grant-writing, leading research projects, and presenting to funding institutions and international conferences. Since August 2020, I also serve as a co-instructor for the Introduction to Data Science class of the Department’s master’s in Health Data Science program.

**Chilean Pension Supervisor (Pension System Watchdog), August 2011– August 2014** Research Division *Analyst*. My main responsibilities were: Conducting statistical and econometric analysis of the Chilean unemployment insurance, developing scientific software to deal with big data, and serve as a bridge between the IT and Research divisions.

**Nodos Chile Social Network Analysis Ltda., January 2012–January 2014** *Partner*. Founding partner of one of the first applied SNA Consultancy Entrepreneurship in Chile.

**Universidad Adolfo Ibáñez, January 2011–June 2012.** School of Government *Adjunct Professor*. Taught Introductory courses of Economics, Microeconomics and Statistical computing with Stata.

**Chilean Ministry of Social Planning, March 2011–December 2011.** Social Programs Monitoring *Analyst*. Survey and Analysis of the Government social programs supply and supporting the Monitoring Division with the Open-Data Initiative.

## Peer Reviewed Publications

- [1] **George G. Vega Yon**, Andrew Slaughter, and Kayla de la Haye. “Exponential random graph models for little networks”. In: *Social Networks* 64 (2021). **(Top 3 most downloaded articles–in the last 90 days–from Social Networks as of January 26th, 2021.)**, pp. 225–238. URL: <https://doi.org/10.1016/j.socnet.2020.07.005>.
- [2] **George G. Vega Yon**, Duncan C. Thomas, John Morrison, et al. “Bayesian parameter estimation for automatic annotation of gene functions using observational data and phylogenetic trees”. In: *PLOS Computational Biology* 17.2 (Feb. 2021), pp. 1–35. URL: <https://doi.org/10.1371/journal.pcbi.1007948>.
- [3] Thomas W. Valente and **George G. Vega Yon**. “Diffusion/Contagion Processes on Social Networks”. In: *Health Education & Behavior* 47.2 (2020), pp. 235–248. URL: <http://journals.sagepub.com/doi/10.1177/1090198120901497>.

- [4] Kayla de la Haye, Heesung Shin, **George G. Vega Yon, et al.** "Smoking Diffusion through Networks of Diverse, Urban American Adolescents over the High School Period". In: *Journal of Health and Social Behavior* 60.3 (2019), pp. 362–376. URL: <https://doi.org/10.1177/0022146519870521>.
- [5] Thomas W. Valente, Heather Wipfli, and **George G. Vega Yon.** "Network influences on policy implementation: Evidence from a global health treaty". In: *Social Science and Medicine* 222 (2019), 188–197. URL: <http://www.sciencedirect.com/science/article/pii/S0277953619300085>.
- [6] **George G. Vega Yon** and Brian Quistorff. "parallel: A command for parallel computing". In: *The Stata Journal: Promoting communications on statistics and Stata* 19.3 (Sept. 2019), pp. 667–684. URL: <http://journals.sagepub.com/doi/10.1177/1536867X19874242>.
- [7] **George G. Vega Yon** and Paul Marjoram. "fmcmm: A friendly MCMC framework". In: *Journal of Open Source Software* 4.39 (July 2019), p. 1427. URL: <http://joss.theoj.org/papers/10.21105/joss.01427>.
- [8] **George G. Vega Yon** and Paul Marjoram. "slurmR: A lightweight wrapper for HPC with Slurm". In: *Journal of Open Source Software* 4.39 (July 2019), p. 1493. URL: <https://joss.theoj.org/papers/10.21105/joss.01493>.
- [9] Brooke M. Bell, Donna Spruijt-Metz, **George G. Vega Yon,** et al. "Sensing eating mimicry among family members". In: *Translational Behavioral Medicine* 9.3 (May 2019), pp. 422–430.
- [10] Jorge Fábrega Lacoa and **George G. Vega Yon.** "El impacto del rating televisivo sobre la actividad en Twitter: evidencia para Chile sobre la base del evento TELETÓN 2012". In: *Cuadernos.info* 33 (Dec. 2013), pp. 43–52. URL: <http://cuadernos.info/index.php/CDI/article/view/533>.

## Work in Progress and Technical Reports

- [1] Marie L. Ouellet, Sadaf Hashimi, and **George G. Vega Yon.** "Network dynamics of officer-involved shootings".
- [2] **George G. Vega Yon.** *Capital Necesario Unitario (CNU): Cálculo e Introducción Del Módulo de Stata CNU*. Working Papers 57. Superintendencia de Pensiones, Aug. 2014. URL: <https://ideas.repec.org/p/sdp/sdpwps/57.html>.
- [3] Ximena Quintanilla, Isabel Poblete, **George G. Vega Yon,** et al. *Estudio Actuarial de los Fondos del Seguro de Cesantía*. Tech. rep. 2013.
- [4] Andrea Repetto and **George G. Vega Yon.** *El Impacto de un Alza en la Cotización Previsional: Pensiones, Salarios y Empleo*. Tech. rep. 2013.

## Software Packages

- [1] **George G. Vega Yon**. *rgexf: Build, Import and Export GEXF Graph Files* (2020). R package version 0.16.0. URL: <https://CRAN.R-project.org/package=rgexf>.  
downloads 547K
- [2] **George G. Vega Yon**, Thomas Valente. *netdiffuseR: Analysis of Diffusion and Contagion Processes on Networks* (2020). R package version 1.22.0. URL: <https://github.com/USCCANA/netdiffuseR>.  
downloads 22K
- [3] **George G. Vega Yon**, Kayla de la Haye. *ergmito: Exponential Random Graph Models for Small Networks* (2020). R package version 0.3-0. URL: <https://cran.r-project.org/package=ergmito>.  
downloads 7793
- [4] **George G. Vega Yon**. *slurmR: A Lightweight Wrapper for 'Slurm'* (2020). R package version 0.4-1. URL: <https://CRAN.R-project.org/package=slurmR>.  
downloads 6311
- [5] **George G. Vega Yon**. *fmcmc: A friendly MCMC framework* (2020). R package version 0.3-0. URL: <https://CRAN.R-project.org/package=fmcmc>.  
downloads 9464
- [6] **George G. Vega Yon**. *barry: your to-go motif accountant* (2020). C++ library version 0.0-1. URL: <https://github.com/USCbiostats/barry>.
- [7] **George G. Vega Yon**. *pruner: Implementing the Felsenstein's Tree Pruning algorithm* (2020). C++ library version 0.0-1. URL: <https://github.com/USCbiostats/pruner>.
- [8] **George G. Vega Yon**, Brian Quistorff. *parallel: Stata Module for Parallel Computing* (2019). Stata Module version 1.20.0. URL: <https://github.com/gvegayon/parallel>.
- [9] **George G. Vega Yon**. *aphylo: Statistical Inference of Annotated Phylogenetic Trees* (2019). R package version 0.1.99. URL: <https://github.com/USCbiostats/phylogenetic>.
- [10] **George G. Vega Yon**. *netplot: Beautiful graph drawing* (2019). R package version 0.0.9000. URL: <https://github.com/USCCANA/netplot>.
- [11] **George G. Vega Yon**. *googlePublicData: Working with Google's 'Public Data Explorer' DSPL Meta-data Files* (2017). R package version 0.16.1. URL: <https://CRAN.R-project.org/package=googlePublicData>.  
downloads 29K
- [12] **George G. Vega Yon**, Enyelbert Muñoz. *ABCOptim: Implementation of Artificial Bee Colony (ABC) Optimization* (2017). R package version 0.15.0. URL: <https://CRAN.R-project.org/package=>

ABCOptim.

downloads 48K

- [13] **George G. Vega Yon**. *twitterreport: Out-of-the-box analysis and reporting tools for twitter* (2016). R package version 0.16. URL: <https://doi.org/10.5281/zenodo.44528>.

## Conference Talks

- [1] **George Vega Yon**, Aileen Dinkjian, Sarah Hamm-Alvarez, et al. "ERGMito Statistical Models for Small Team Social Networks". In: SciTS 2020. (conference talk, [slides/video](#)). June 2020.
- [2] **George Vega Yon**, Andrew Slaughter, and Kayla de la Haye. "Exact Statistics and Semi-Parametric Tests for Small Network Data". In: IC2S2, 2019. (conference talk, [slides](#)). July 2019.
- [3] **George Vega Yon**, Andrew Slaughter, and Kayla de la Haye. "Exact Statistics and Semi-Parametric Tests for Small Network Data". In: Sunbelt 2019. (conference talk, [slides](#)). June 2019.
- [4] **George Vega Yon** and Kayla de la Haye. "Small network statistics for the network science of teams". In: NetSciX 2019, SCL. (conference talk, [slides](#)). Jan. 2019.
- [5] **George Vega Yon**. "Computacion de Alto Rendimiento con R". In: satRday Santiago 2018. (conference workshop, [slides](#)). Dec. 2018.
- [6] **George Vega Yon** and Kayla de la Haye. "Big Problems for Small Networks: Small Network Statistics". In: NASN 2018, DC. (conference talk, [slides](#)). Nov. 2018.
- [7] **George Vega Yon**, Kayla de la Haye, Hee-sung Shin, et al. "Diffusion of Smoking Initiation Among Diverse, Urban American Adolescents Over The High School Period". In: NASN 2017. (conference talk, [slides](#)). July 2017.
- [8] **George Vega Yon** and Brian Quistorff. "Uncomplicated Parallel Computing with Stata". In: Stata Conference 2017. (conference talk, [slides](#)). July 2017.
- [9] **George Vega Yon** and Thomas W. Valente. "Understanding Diffusion with netdiffuseR". In: NASN 2017. (conference workshop, [slides](#)). July 2017.
- [10] **George Vega Yon** and Thomas W. Valente. "Network Diffusion of Innovations in R: Introducing netdiffuseR". In: IC2S2, 2016. (conference poster, [slides](#)). June 2016.
- [11] **George Vega Yon** and Thomas W. Valente. "Network Diffusion of Innovations in R: Introducing netdiffuseR". In: useR! 2016. (conference talk, [slides/video](#)). June 2016.
- [12] **George Vega Yon** and Thomas W. Valente. "Understanding Diffusion with netdiffuseR". In: Sunbelt Conference, 2016. (conference workshop, [slides/video](#)). Mar. 2016.
- [13] **George Vega Yon**. "Just tired of endless loops! or parallel: Stata module for parallel computing". In: Stata Conference, 2013. (conference talk, [slides](#)). July 2013.

## Invited Speaker

- [1] "Triads, Dyads, and Gene Functions - When Social Network Analysis Meets Phylogenetics". In: Computational Cancer Genomics Working Group Evening Lecture. (invited talk, [slides/video](#)). Mar. 2021.
- [2] ""Predicción de funciones genéticas utilizando evidencia experimental y árboles filogenéticos: Un modelo evolutivo" o "Ciencia de datos en la práctica"". In: PUC Mathematical and Computational Engineering Seminars. (invited talk, [slides](#)). Apr. 2020.
- [3] "A Brief Introduction to Using R for High-Performance Computing". In: Orange County R Users Group. (invited talk, [slides/video](#)). Aug. 2019.
- [4] "Big Problems for Small Networks: Statistical Analysis of Small Networks and Team Performance". In: UCI Social Network Research Group. (invited talk, [slides](#)). Apr. 2019.
- [5] "Big Problems for Small Networks: Statistical Analysis of Small Networks and Team Performance". In: SONIC Speaker. (invited talk, [slides/video](#)). Mar. 2019.
- [6] "Estadística de Redes y Econometría Espacial (con R)". In: IMFD Summer School. (invited talk, [slides/video](#)). Dec. 2018.

## Other Talks

- [1] "A Crash course on git". In: Happy Scientist Seminar. (workshop, [slides/video](#)). Mar. 2021.
- [2] "HPC with Slurm, R, and the slurmR R package". In: Happy Scientist Seminar. (workshop, [slides/video](#)). Feb. 2021.
- [3] "Essays on Bioinformatics and Social Network Analysis: Statistical and Computational Methods for Complex Systems". In: Doctoral Defense. (talk, [slides](#)). June 2020.
- [4] "Essays on Bioinformatics and Social Network Analysis Statistical and Computational Methods for Complex Systems". In: Biostats Seminars. (talk, [slides/video](#)). Jan. 2020.
- [5] "slurmR workshop". In: Happy Scientist Semminar Series. (workshop, [slides](#)). Jan. 2020.
- [6] "Happy Scientist Seminar: Research Pipelines". In: Happy Scientist Seminar. (talk, [slides](#)). Oct. 2019.
- [7] "What drives social networks? A gentle introduction to exponential random graph models (with a focus on small networks)". In: East LA R User Group. (talk, [slides](#)). June 2019.
- [8] "Overview of Social Network Models". In: NA. (talk, [slides](#)). Dec. 2018.
- [9] "A brief introduction to using R for high-performance computing". In: East LA R User Group. (talk, [slides](#)). Nov. 2018.

- [10] "R Bootcamp for Scientific Computing 2018". In: R Bootcamp for Scientific Computing. (workshop, [slides](#)). Aug. 2018.
- [11] "Intro to R". In: USC's HPCC workshop. (workshop, [slides](#)). July 2018.
- [12] "Introduction to R (for HPC users)". In: USC's HPCC workshop. (workshop, [slides](#)). July 2018.
- [13] "Reproducible Research". In: HBR Students talk. (talk, [slides](#)). Sept. 2016.

## Teaching

### **(PM 566) Introduction to Health Data Science**

Fall 2020

University of Southern California, USA

Co-instructor, Masters of Science in Public Health Data Science

### **Statistical Computing with Stata**

First semester 2012

Universidad Adolfo Ibáñez, Chile

Instructor, Masters in Economics and Public Policy

### **Introduction to Economics**

First semester 2012

Universidad Adolfo Ibáñez, Chile

Co-instructor, B.A. in Business Administration

### **Microeconomics**

Second semester 2012

Universidad Adolfo Ibáñez, Chile

Co-instructor, B.A. in Business Administration

### **Introduction to Economics**

First semester 2011

Universidad Adolfo Ibáñez, Chile

Co-instructor, B.A. in Business Administration

## Honors and Services to the Profession

### **Manuscript Review (Ad Hoc)**

The Official Journal of The Society for Computational Economics

The R Journal

The Stata Journal

Social Networks

Journal of Mathematical Sociology

Computer Methods and Programs in Biomedicine Update

Journal of Open Source Software



### Abstract Review

International Conference on Computational Social Science (2019)

International Conference on Computational Social Science (2020)

SUNBELT Conference (2016)

### Book Review

"Microeconometrics and Matlab: An Introduction", by Adams, Clarke and Quinn, Oxford University Press, 2015.

"Mastering Gephi Network Visualization", by Ken Cherven, Packt Publishing, 2015.

"Network Graph Analysis and Visualization with Gephi", by Ken Cherven, Packt Publishing, 2013.

### Misc

Founder of the (first) [R Users Group in Chile](#) (2013)

Co-organizer of the [East LA R User Group \(LAERUG\)](#).

## Software

R, C++,  $\text{\LaTeX}$ , SQL, XML, regex, Stata+Mata, VBA, Gephi, Pajek, Mathematica, MS Suit, Git, Unix

last update: March 19, 2021

<https://ggvy.cl>